

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 30

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TAKASHI SOHDA,
SHIGEHISA TAKETOMI, and
TSUNEO ODA

Appeal No. 2000-1717
Application 08/579,731

ON BRIEF

Before WINTERS, WILLIAM F. SMITH, and MILLS Administrative Patent Judges.

WINTERS, Administrative Patent Judge.

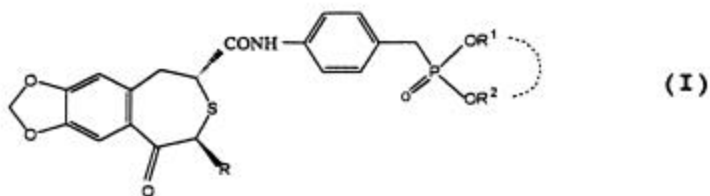
DECISION ON APPEAL

This appeal was taken from the examiner's decision rejecting claims 1 through 7 and 10 through 16, which are all of the claims remaining in the application.

REPRESENTATIVE CLAIM

Claim 1, which is illustrative of the subject matter on appeal, reads as follows:

1. An optically active 2R,4S isomer according to formula (I):



wherein R represents a lower alkyl group; R¹ and R² independent represent a lower alkyl group, or together represent a lower alkylene.

THE PRIOR ART REFERENCE

In rejecting the appealed claims under 35 U.S.C. § 103, the examiner relies on the following reference:

Sohda et al. (Sohda)

5,158,943

Oct. 27, 1992

THE ISSUE

The issue presented for review is whether the examiner erred in rejecting claims 1 through 7 and 10 through 16 under 35 U.S.C. § 103 as unpatentable over Sohda.

DELIBERATIONS

Our deliberations in this matter have included evaluation and review of the following materials:

- (1) the instant specification, including all of the claims on appeal;
- (2) applicants' main Brief (Paper No. 24) and the Reply Brief (Paper No. 26);
- (3) the Examiner's Answer (Paper No. 25);

(4) the above-cited prior art reference; and

(5) the Makino declaration, filed under the provisions of 37 CFR § 1.132, copy attached as Appendix B to the Appeal Brief.

On consideration of the record, including the above-listed materials, we reverse the examiner's rejection under 35 U.S.C. § 103.

DISCUSSION

Applicants' invention relates to optically active benzothiepin derivatives useful for stimulating bone growth in mammals. The invention is based on applicants' discovery that the 2R, 4S stereoisomer ("2R, 4S-isomer") of a benzothiepin racemate, known in the art at the time the invention was made, possesses significant bone resorption-suppressing activity. According to applicants, the record establishes that the level of protein synthesis and bone growth activity shown by a representative 2R,4S-isomer is greater than the activity demonstrated by twice the dose of racemate.¹ Thus, according to applicants, their invention provides diastereomerically pure active ingredients having greater bone formation activity than the corresponding prior art racemic ingredients at lower dosages.

The pending claims are directed to 2R,4S benzothiepin isomeric compounds, a method of making the same, intermediate compounds useful in making the same, compositions containing the same, and methods of treatment using the same.

¹ As stated in the Makino declaration, filed under the provisions of 37 CFR § 1.132, page 13, the racemate consists of (2R,4S)-active isomer, and (2S,4R)-inactive isomer. A copy of the Makino declaration is attached as Appendix B to the Appeal Brief.

The examiner argues that claims 1 through 7 and 10 through 16 would have been prima facie obvious in view of Sohda's disclosure of benzothiepin racemate compounds, a method of making those compounds, intermediates useful in making those compounds, compositions containing the same, and methods of treatment using the same. Applicants do not controvert the prima facie case of obviousness. Rather, applicants argue that the Makino declaration serves to rebut the prima facie case applied against all of the appealed claims. In their Appeal Brief, paragraph bridging pages 10 and 11, applicants argue that:

The claims of the present application are directed to 2R,4S-isomers that achieve a level of activity that is five-times greater than the level of activity demonstrated by an equal concentration of the racemic mixture. The Examiner has not disputed that the showings of activity differences provided by Appellants are representative of the claimed genus of 2R,4S-isomers, but has maintained that the showings are either insufficient or immaterial and irrelevant. Appellants could not disagree more and respectfully submit that the claimed compounds of this invention are patentable over the prior art disclosure of Sohda specifically because of this significant difference in activity of the 2R,4S-isomers over the racemic compounds.

As described at length in the Makino declaration, the bone formation activity of applicants' optically active 2R,4S-isomer is more than five times that of the racemic mixture. Dr. Makino states that "this surprising result was unexpected and could not have been predicted" and "I have not been able to understand the reason [for this result] yet" (Makino declaration, page 15, lines 5 through 7).

The examiner does not argue that the showing in the Makino declaration fails to compare the claimed invention (2R,4S-isomer) with the closest prior art (racemate disclosed by Sohda). Nor does the examiner argue that the showing is not sufficiently representative of the claimed subject matter, i.e., not commensurate in scope with the

claims; nor that declarant failed to test a significant property in this art. Rather, the examiner argues that:

applicant failed to show that a five-fold increase in activity is outside the norm or unexpected. There is nothing in the law or facts presented in this case which show what is the range of expected activity for an isomer over its racemate; this needs to be established [Examiner's Answer, page 5, lines 12 through 15].

We disagree.

As stated in the Appeal Brief, page 7, it would have been expected that the biological response elicited by a given dosage of pure (2R,4S)-isomer would be equal to twice that elicited by the same dosage of racemate. Put another way, it would have been expected that when the racemate is administered at a dose two times that of the (2R,4S)-isomer, its bone formation activity would be equal to that of the (2R,4S)-isomer (Makino declaration, page 13, last full paragraph). This is the factual basis for the expected "two-fold" increase in activity of the claimed optical isomer compared with the closest prior art. The examiner's position to the contrary, notwithstanding, this expectation is adequately established by declaration evidence of record.

The uncontroverted facts of record show that a representative (2R,4S)-isomer possesses bone formation activity more than five times that of the prior art racemate. Test data reported in the Makino declaration show that the activity of the claimed optically active compound is not two times that of the racemic mixture (which would have been expected), but more than five times that of the racemic mixture. On the strength of this rebuttal evidence establishing unexpectedly superior results, we reverse the rejection of all the appealed claims under 35 U.S.C. § 103.

The examiner's decision, rejecting claims 1 through 7 and 10 through 16 under 35 U.S.C. § 103 as unpatentable over Sohda, is reversed.

REVERSED

Sherman D. Winters
Administrative Patent Judge

William F. Smith
Administrative Patent Judge

Demetra J. Mills
Administrative Patent Judge

)
)
)
)
) BOARD OF PATENT
) APPEALS AND
)
) INTERFERENCES
)
)

Appeal No. 2000-1717
Application 08/579,731

Fitzpatrick, Cella, Harper, & Scinto
277 Park Avenue
New York, NY 10172